

DS03-007

ABSTRACT

Five circuit topologies of Voltage-Controlled Oscillators with Single Inductor (VCO-1L) are proposed. They offer lower power consumption, higher output amplitude, broader tuning range, cleaner spectrum and higher frequency stability seen as lower phase-noise. Most of the achievements are based on the development of active pull-down control circuitries of the timing and active charge dissipation in the transistors. The applications of the present invention are of critical importance for wireless communication systems not allowing any limitations in the frequency range. Among them are base stations and mobile terminals/mobile phones, GSM, PCS/DCS, W-CDMA etc., as well BlueTooth, Wireless LAN, Automotive and ISM band etc. The advanced performance of the circuits is based on important architectural specifics and proven by simulation on advanced CMOS process. The architectures are not limited to use on CMOS; they can be efficiently used in any semiconductor process where complimentary polarity transistors are available, for example BiCMOS, SiGe/BiCMOS, GaAs etc.